

Cast-in-Place Concrete Vault Collars



1. Scope

This standard covers the requirements for cast-in-place concrete vault collars.

2. Application

Concrete collars are slabs of concrete installed around vault openings to prevent damage to the vault roofs, risers, and openings by vehicles. Collars also provide a stable area for lids to sit on when removed.

Vault openings must be secured to concrete to prevent the casting and frame from shifting.

3. Requirements

Concrete collars shall be installed around every vault opening in roadways, alleys, driveways, and parking areas. Collars are also required where hatches are not surrounded by a flat, solid area such as in planting strips.

If the surrounding roadway pavement is concrete and the vault openings will be entirely within a single concrete panel with minimum edge distances as specified below, the hatch frames may be embedded into the surrounding concrete pavement and a separate concrete collar will not be required. Hairpin bars and diagonal trim reinforcement according to this standard shall be installed in addition to the pavement reinforcement.

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For hatches cast in concrete sidewalks, hairpin bars and diagonal trim reinforcement according to this standard shall be installed in addition to the sidewalk reinforcement. Concrete shall be a minimum of 6 inches thick and provide a minimum of 2 inches of concrete cover surrounding rebar.

Collars shall be poured separately from any vault risers.

Vault openings shall be secured to the concrete collar or concrete pavement. The top of the concrete collar shall be at finished grade.

Concrete collars shall be a rectangular slab, 10 ft by 10 ft minimum, with a minimum thickness of 6 inches.

Reinforcement shall be ASTM A615 or A706 grade 60 and placed 3 inches below top surface of concrete.

Collars shall be manufactured with Class 4000 concrete and shall meet the requirements of section 6-02 of the City of Seattle Standard Specifications.

Collars shall be centered on each vault opening and sized to provide 2 ft minimum of concrete from the edge of the opening to the edge of the collar.

Concrete shall have a broom finish perpendicular to the direction of traffic or match the roadway finish when installed in a concrete roadway.

Opening frames shall be secured to the concrete collar or pavement with rebar hairpins. Rebar hairpins shall be #4, 2-ft-long minimum. See Figure 3a.

Examples of common collar and vault opening layouts are shown in figures 3b–3e.

Figure 3a. Rebar Hairpin Example



Figure 3b. Single Round Access Example

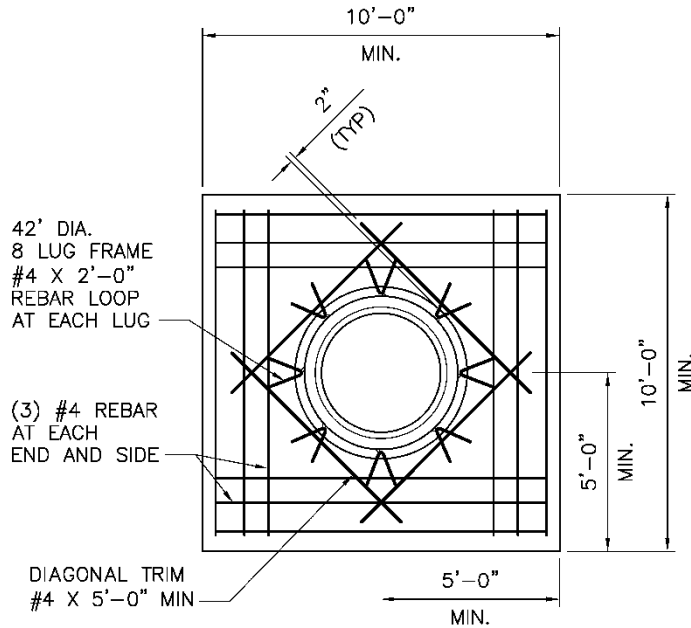


Figure 3c. Two Round Accesses Example

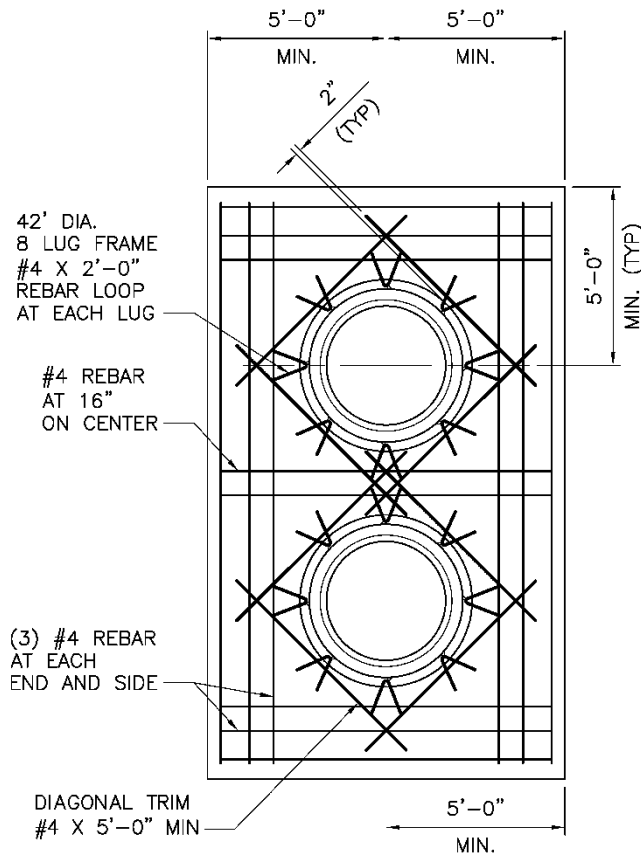


Figure 3d. Round Access and Rectangular Hatch

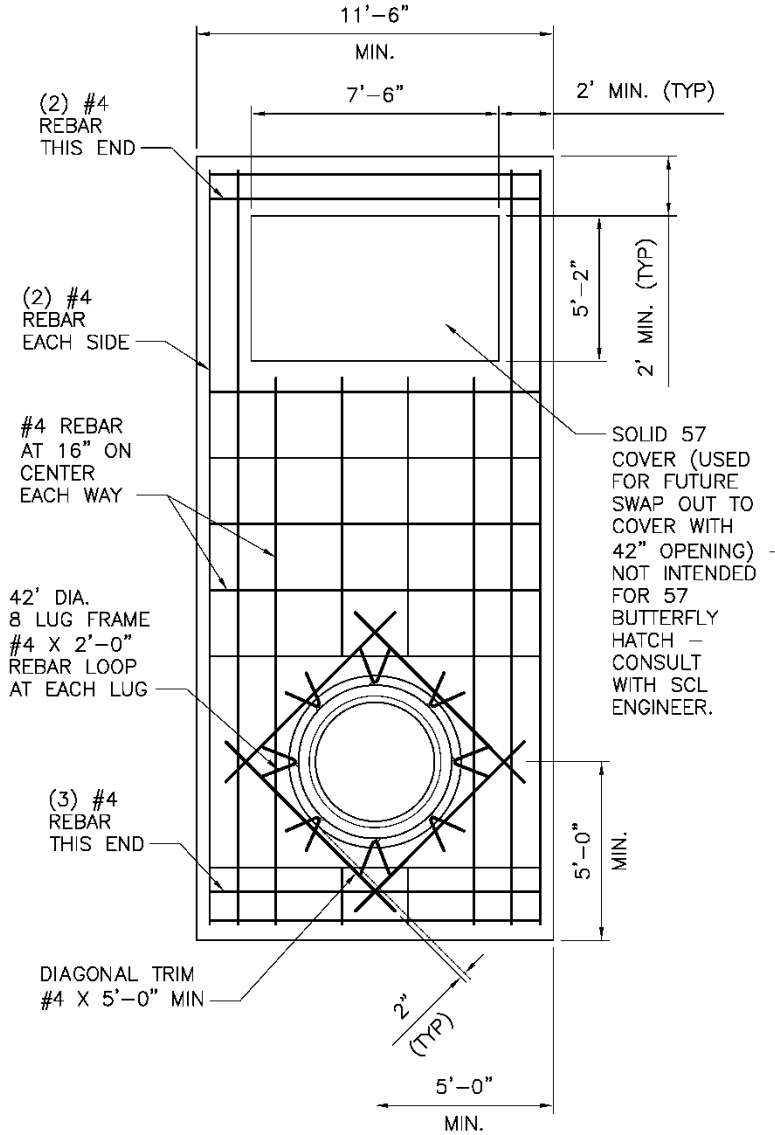
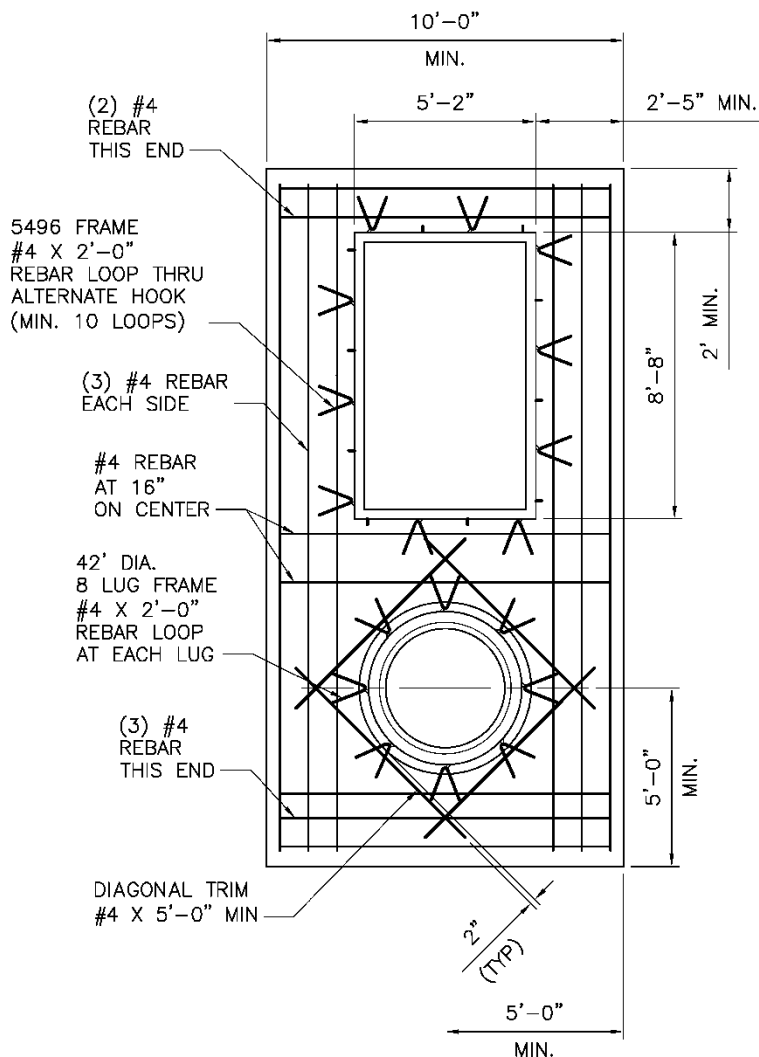


Figure 3e. Round Access and 5496 Hatch



4. Sources

City of Seattle Standard Specifications for Road, Bridge, and Municipal Construction; 2020 Edition

Hanson, Brett; SCL Standards Engineer, originator, and subject matter expert for 0223.33

Kohashi, Owen; Structural Engineer and subject matter expert for 0223.33

Ng, Sharon; Senior Civil Engineer and subject matter expert for 0223.33

SCL Material Standard 7203.81; "Precast Reinforced Concrete Panel Vaults"

SCL Material Standard 7204.15; "Covers and Risers for Electric Vaults"

SCL Material Standard 7204.70; Frames and Covers, 42-Inch Round, Iron"